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EXAMINER	
SHEW, JOHN	

ART UNIT	PAPER NUMBER
2664	

DATE MAILED: 10/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/924,054	SAITO, HIROYUKI	
	Examiner	Art Unit	
	John L. Shew	2664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09/13/2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,5,6,9,10,13 and 14* is/are rejected.

7)☒ Claim(s) *3,4,7,8,11,12,15 and 16* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 August 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *08182005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 5, 6, 9, 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Benmohamed et al. (Patent number 6795399).

Claim 1, Benmohamed teaches a communication network designing circuit for multiple point communication service (Abstract lines 1-8) referenced by the apparatus for designing IP networks for optimistic link capacity requirements, for permitting arbitrary communication within a predetermined range (column 2 lines 5-10) referenced by the upper and lower link capacity bounds, by providing traffic flowing in from an ingress node through which data flows in from an other network (FIG. 5, column 14 lines 13-25) referenced by the input VPN demands for a given link Step 502, and traffic flowing out from an egress node through which data is fed to the other network (FIG. 5, column 14

lines 25-33, column 4 lines 21-31) referenced by the output link capacity C_l^{WFQ} for link l of all VPN demands routed through link l Step 508 wherein the V set of nodes corresponding to points of presence is the initial backbone network topology of traffic flow, comprising setting means for setting a mathematical programming problem for deriving said multiple point communication service (FIG. 1, FIG. 2, column 5 lines 12-23, column 7 lines 30-35) referenced by the Worst-Case Link Capacity Requirements Processor 14 which sets the input link requirements and the optimization based on equation (5), to permit arbitrary communication within the predetermined range (column 2 lines 5-10) referenced by the upper and lower link capacity bounds for the predetermined range, and optimization means for solving the mathematical programming problem set by said setting means (FIG. 1, FIG.2, column 5 lines 23-29) referenced by the Network Topology Optimization Processor 18 calculating the network cost to obtain the final network design, and obtaining a path for said multiple point communication service (FIG. 2, column 5 lines 28-33) referenced by the resulting route of each traffic flow f_i.

Claim 2, Benmohamed teaches said path for said multiple point communication service is derived on the basis of a preliminarily set optimization standard (column 4 lines 21-45) referenced by the input to the IP network design system the IP flow demand specified by f_i given as a 6-tuple $f_i=(s_i, t_i, a_i, n_i, d_i, r_i)$ where s_i and t_i are the source and destination nodes for the path and f_i as the input standard.

Claim 5, Benmohamed teaches a communication network designing method for multiple point communication service (Abstract lines 1-8) referenced by the method for designing IP networks for optimistic link capacity requirements, for permitting arbitrary communication within a predetermined range (column 2 lines 5-10) referenced by the upper and lower link capacity bounds, by providing traffic flowing in from an ingress node through which data flows in from an other network (FIG. 5, column 14 lines 13-25) referenced by the input VPN demands for a given link Step 502, and traffic flowing out from an egress node through which data is fed to the other network (FIG. 5, column 14 lines 25-33, column 4 lines 21-31) referenced by the output link capacity C_l^{WFQ} for link l of all VPN demands routed through link l Step 508 wherein the V set of nodes corresponding to points of presence is the initial backbone network topology of traffic flow, comprising setting a mathematical programming problem for deriving said multiple point communication service (FIG. 2, column 5 lines 12-23, column 7 lines 30-35, FIG. 3, column 12 lines 38-53) referenced by the Worst-Case Link Capacity Requirements Processor 14 which sets the input link requirements and the optimization based on equation (5) the input of point-to-point VPN demands and computation of worst-case line capacity Step 304, to provide arbitrary communication within the predetermined range (column 2 lines 5-10) referenced by the upper and lower link capacity bounds for the predetermined range, solving the mathematical programming problem set by said setting (FIG. 1, FIG.2, column 5 lines 23-29) referenced by Computation Capacity of Each Link Step 204 by Optimization Processor 18, and obtaining a path for said multiple

point communication service (FIG. 2, column 5 lines 28-33) referenced by the resulting route of each traffic flow f_i.

Claim 6, Benmohamed teaches said path for said multiple point communication service is derived on the basis of a preliminarily set optimization standard (column 4 lines 21-45) referenced by the input to the IP network design system the IP flow demand specified by f_i given as a 6-tuple $f_i=(s_i, t_i, a_i, n_i, d_i, r_i)$ where s_i and t_i are the source and destination nodes for the path and f_i as the input standard.

Claim 9, Benmohamed teaches a storage medium storing a communication network design control program (column 3 lines 20-40) referenced by the CPU RAM and software instructions to perform the methodology, for designing a communication network for multiple point communication service (Abstract lines 1-8) referenced by the method for designing IP networks for optimistic link capacity requirements, for permitting arbitrary communication within a predetermined range (column 2 lines 5-10) referenced by the upper and lower link capacity bounds, by providing traffic flowing in from an ingress node through which data flows in from an other network (FIG. 5, column 14 lines 13-25) referenced by the input VPN demands for a given link Step 502, and traffic flowing out from an egress node through which data is fed to the other network (FIG. 5, column 14 lines 25-33, column 4 lines 21-31) referenced by the output link capacity C_l^{WFQ} for link l of all VPN demands routed through link l Step 508 wherein the V set of nodes corresponding to points of presence is the initial backbone network topology of

traffic flow, said communication network design control program comprising setting a mathematical programming problem for deriving said multiple point communication service (FIG. 2, column 5 lines 12-23, FIG. 3, column 12 lines 38-53) referenced by the input of point-to-point VPN demands and computation of worst-case line capacity Step 304, to provide arbitrary communication within the predetermined range (column 2 lines 5-10) referenced by the upper and lower link capacity bounds for the predetermined range, solving the mathematical programming problem set in said setting step (FIG. 1, FIG.2, column 5 lines 23-29) referenced by Computation Capacity of Each Link Step 204 by Optimization Processor 18, and obtaining a path for said multiple point communication service (FIG. 2, column 5 lines 28-33) referenced by the resulting route of each traffic flow f_i.

Claim 10, Benmohamed teaches deriving said path for said multiple point communication service on the basis of a preliminarily set optimization standard (column 4 lines 21-45) referenced by the input to the IP network design system the IP flow demand specified by f_i given as a 6-tuple $f_i=(s_i, t_i, a_i, n_i, d_i, r_i)$ where s_i and t_i are the source and destination nodes for the path and f_i as the input standard.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 13, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benmohamed as applied to claims 1, 2, 5, 6, 9, 10 above, in view of Debey (Patent number 6519693).

Claim 13, Benmohamed teaches a communication network design control program (column 3 lines 20-40) referenced by the CPU RAM and software instructions to perform the methodology, for designing a communication network for multiple point communication service (Abstract lines 1-8) referenced by the method for designing IP networks for optimistic link capacity requirements, for permitting arbitrary communication within a predetermined range (column 2 lines 5-10) referenced by the upper and lower link capacity bounds, by providing traffic flowing in from an ingress node through which data flows in from an other network (FIG. 5, column 14 lines 13-25) referenced by the input VPN demands for a given link Step 502, and traffic flows out from an egress node through which data is fed to the other network (FIG. 5, column 14 lines 25-33, column 4 lines 21-31) referenced by the output link capacity C_l^{WFQ} for link l of all VPN demands routed through link l Step 508 wherein the V set of nodes corresponding to points of presence is the initial backbone network topology of traffic flow, said communication network design control program comprising setting a

mathematical programming problem for deriving said multiple point communication service (FIG. 2, column 5 lines 12-23, FIG. 3, column 12 lines 38-53) referenced by the input of point-to-point VPN demands and computation of worst-case line capacity Step 304, to provide arbitrary communication within the predetermined range (column 2 lines 5-10) referenced by the upper and lower link capacity bounds for the predetermined range, solving the mathematical programming problem set in said setting step (FIG. 1, FIG.2, column 5 lines 23-29) referenced by Computation Capacity of Each Link Step 204 by Optimization Processor 18, and obtaining a path for said multiple point communication service (FIG. 2, column 5 lines 28-33) referenced by the resulting route of each traffic flow f_i. Benmohamed does not teach a transmission medium transmitting a communication program.

Debey teaches a transmission medium transmitting a communication program (FIG.2, column 2 lines 40-46, column 3 lines 46-48) referenced by the CATV network for program transmission.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to transmit the network design program of Benmohamed over an information network as suggested by Debey for the purpose of increasing greater accessibility to information required to be accessed by more than one person at the same time (Debey column 1 lines 33-40).

Claim 14, Benmohamed teaches said communication network design control program operates said computer for obtaining said path for said multiple point communication

service is on the basis of a preliminarily set optimization standard (column 4 lines 21-45) referenced by the input to the IP network design system the IP flow demand specified by f_i given as a 6-tuple $f_i=(s_i, t_i, a_i, n_i, d_i, r_i)$ where s_i and t_i are the source and destination nodes for the path and f_i as the input standard.

Allowable Subject Matter

3. Claims 3, 4, 7, 8, 11, 12, 15, 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

The examiner has considered the arguments traversing the rejection of claim 1 and respectfully disagrees.

Benmohamed discloses a setting means for setting a mathematical programming problem for deriving said multiple point communication service (FIG. 1, FIG. 2, column 5 lines 12-23, column 7 lines 30-35) referenced by the Worst-Case Link Capacity Requirements Processor 14 which sets the input link requirements and the optimization based on equation (5), to permit arbitrary communication within the predetermined range (column 2 lines 5-10) referenced by the upper and lower link capacity bounds for the predetermined range.

Figure 1 is a block diagram of an IP network design system. Figure 2 is a flow chart of a design methodology of the system.

Column 5 lines 12-23 cites:

"Referring to FIG. 2, one embodiment of a general design algorithm 200 of the system proceeds as follows. First, the traffic mix F_l at each link is computed (by routing processor 12) based on an initial network topology G_s (from optimization processor 18) which is subgraph of G, the routing algorithm R, the link metric vector l, and the set of IP demands F (step 202). Second, the capacity of each link required to satisfy the bandwidth demands in F_l is computed (by link capacity requirements processors 14 and 16) based on the type(s) of routers in the network, the different assumptions on congestion scenario, and in some cases the end-to-end delays of the TCP demands (step 204)."

Column 7 lines 30-35 cites equation 5 which is a link capacity function.

Column 2 lines 5-10 cites:

"In a first aspect of the invention, methods and apparatus are provided for computing link capacity requirements of the links of the network. Particularly, upper and lower link capacity bounds are computable to provide the user of the design methodology with worst-case and optimistic results as a function of various design parameters."

Benmohamed discloses a Worst-Case Link Capacity Requirements Processor 14 which sets the requirements for mathematical link capacity optimization problem performed by Optimistic Link Capacity Design Processor 16. The use of equation 5 is towards the determination of minimum link capacity problem. Further, Figure 1 discloses other information input to the Worse-Case Link Capacity Requirements Processor 14 to set the parameters required for the optimization problem. This information set includes Congestion Scenario (H^o), Scheduling Scheme and Buffering Scheme.

Benmohamed discloses an optimizing means for solving the mathematical programming problem. Column 5 lines 23-33 cites:

"Third, the design system determines whether the final network design (by optimization processor 18) is obtained (step 206). If not, in step 208, the network topology is perturbed (by optimization processor 18) and the new network cost is evaluated in accordance with steps 202 and 204. This design iteration is then repeated until the final network design is obtained. The results of the final design are output (step 210), e.g., in the form of information displayed to the user of the design system, including: (1) the vector C; (2) the route of each traffic flow f_i; and (3) the corresponding network cost."

The Network Topology Optimization Processor 18 is an optimization means which receives input from the setting means of the Worst-Case Link capacity Requirements

Processor 14. Subsequent processing results in the output of a route of each traffic flow f_i which is a path for the multiple point communication.

The examiner has considered the arguments traversing the rejection of claim 5 and respectfully disagrees.

Benmohamed discloses setting a mathematical programming problem for deriving the multiple point communication service to provide arbitrary communication within the predetermined range as discussed above. Further, Figure 3 discloses a flowchart of computing link capacity requirements.

Column 12 lines 38-53 cites:

"Referring to FIG. 3, a method 300 of computing FIFO/RED-based worst-case link capacity requirements according to the invention is shown. It is to be understood that the notation c denotes the link capacity taking into account only the TCP traffic, while C denotes the link capacity taking into account both TCP and UDP traffic. Accordingly, as is evident from the terms in the equations, the first addition term is the link capacity requirement for TDP traffic and the second addition term is the link capacity requirement for UDP traffic. Further, it is to be appreciated that such computation is performed by the worst-case link capacity requirements processor 14 (FIG. 1) based on input form the routing processor 12 and the user. Accordingly, such design methodology provides the user of the system 10 with a computation, based on particular input specifications, of link capacity requirements on a link by link basis."

The disclosure describes a worst-case link capacity problem which is subsequently used towards the output of Network Design Information inclusive of the output of a route of each traffic flow f_i which is a path for the multiple point communication. As such, this disclosure represents a mathematical programming problem to determine the path of a communication service.

The examiner has considered the arguments traversing the rejection of claim 9 and respectfully disagrees.

Benmohamed discloses setting a mathematical programming problem for deriving the multiple point communication service to provide arbitrary communication within the predetermined range as discussed above. Further, Benmohamed discloses a storage medium for which to implement the claimed mathematical program as cited in column 3 lines 20-38.

"Further, the term 'processor' as used herein is intended to include any processing device, including a CPU (central processing unit) and associated memory. The term "memory" as used herein is intended to include memory associated with a processor or CPU, such as RAM, ROM, a fixed memory device (e.g., hard drive), or a removable memory device (e.g., diskette). In addition, the processing device may include one or more input devices, e.g., keyboard, for inputting data to the processing unit, as well as one or more output devices, e.g., CRT display and/or printer, for providing results associated with the processing unit. It is also to be understood that various elements associated with a processor may be shared by other processors. Accordingly, the

software instructions or code for performing the methodologies of the invention, described herein, may be stored in one or more of the associated memory devices (ROM, fixed or removable memory) and, when ready to be utilized, loaded into RAM and executed by a CPU.""

The examiner has considered the arguments traversing the rejection of claim 10 and respectfully disagrees.

Claim 10 is directed to a storage medium for deriving the path for multiple point communication service on the basis of a preliminarily set optimization standard.

Benmohamed discloses a storage medium for deriving the path for multiple point communication service as discussed in the prior claim 9.

Benmohamed further teaches deriving said path on the basis of a preliminarily set optimization standard (column 4 lines 21-45) referenced by the input to the IP network design system the IP flow demand specified by f_i given as a 6-tuple $f_i=(s_i, t_i, a_i, n_i, d_i, r_i)$ where s_i and t_i are the source and destination nodes for the path and f_i as an input standard used for optimization.

The examiner has considered the arguments traversing the rejection of claim 13 and respectfully disagrees.

Benomohamed discloses setting a mathematical programming problem for deriving the multiple point communication service to provide arbitrary communication within the predetermined range as discussed in the prior claims 1, 5 and 9 above. Debey

discloses a transmission medium transmitting a communication program (FIG.2, column 2 lines 40-46, column 3 lines 46-48) referenced by the CATV network for program transmission. The combination of Benomohamed and Debey disclose the limitations of claim 13.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John L. Shew whose telephone number is 571-272-3137. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 571-272-3134. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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